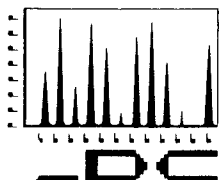


APPENDIX C

Data Validation



LABORATORY DATA CONSULTANTS, INC.

7750 El Camino Real, Suite 2L Carlsbad, CA 92009 Phone: 760/634-0437 Fax: 760/634-0439

Haley & Aldrich, Inc.
9040 Friars Road, Suite 220
San Diego, CA 92108
ATTN: Ms. Beth Breitenbach

November 19, 2003

SUBJECT: Boeing C-6, Data Validation

Dear Ms. Breitenbach,

Enclosed is the final validation reports for the fraction listed below. This SDG was received on November 10, 2003. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project # 11095:

<u>SDG #</u>	<u>Fraction</u>
EM2303	Volatiles

The data validation was performed under Tier 1, Tier 2 and Tier 3 guidelines. The analyses were validated using the following documents, as applicable to each method:

- USEPA, Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996

Please feel free to contact us if you have any questions.

Sincerely,

Steven A. Ziliak
Senior Chemist

LDC #11095 (Haley & Aldrich, Inc.-San Diego / Boeing Building C-6)

[illegible]

Shaded cells indicate Tier III validation (all other cells are Tier II validation). Sample counts do not include MS, MSD, or DUP's.

11095ST.wpd

**Boeing Building C-6 EM2303
Data Validation Reports
LDC# 11095**

Volatiles

LDC

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name: Boeing Building C-6 EM2303
Collection Date: September 24, 2003
LDC Report Date: November 18, 2003
Matrix: Water
Parameters: Volatiles
Validation Level: Tier 1, Tier 2, & Tier 3
Laboratory: Severn Trent Laboratories

Sample Delivery Group (SDG): E3I240379

Sample Identification

TB_TAIT092403_0001
EB_TAIT092403_0001
TMW_7_WG092403_0001*
TMW_7_WG092403_0002*
TMW_4_WG092403_0001*
TMW_6_WG092403_0001**
FB_TAIT092403_0001
TMW_1_WG092403_0001*
TMW_2_WG092403_0001*
DAC_P1_WG092403_0001
TMW_7_WG092403_0001MS
TMW_7_WG092403_0001MSD

*Indicates sample underwent a Tier 2 review

**Indicates sample underwent a Tier 3 review

All others samples underwent a Tier 1 review

Introduction

This data review covers 12 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a Tier 3 review. A Tier 2 review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Tier 2 or Tier 1 criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs).

For the purposes of technical evaluation, all compounds were evaluated against the 30.0% (%RSD) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria with the following exceptions:

Date	Compound	%RSD	Associated Samples	Flag	A or P
9/23/03	Bromoform 1,2-Dibromo-3-chloropropane Vinyl acetate	30.51 40.836 34.785	All samples in SDG E3I240379	J (all detects) UJ (all non-detects)	A

Average relative response factors (RRF) for all volatile target compounds and system performance check compounds (SPCCs) were within method and validation criteria with the following exceptions:

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
9/23/03	Acetone 2-Butanone 2-Chloroethylvinyl ether 1,2-Dibromo-3-chloropropane Tetrahydrofuran	0.01771 (≥ 0.05) 0.03321 (≥ 0.05) 0.03026 (≥ 0.05) 0.03628 (≥ 0.05) 0.02421 (≥ 0.05)	All samples in SDG E3I240379	J (all detects) UJ (all non-detects)	A

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for calibration check compounds (CCCs).

For the purposes of technical evaluation, all compounds were evaluated against the 25.0% (%D) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria.

All of the continuing calibration RRF values were within method and validation criteria with the following exceptions:

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
9/24/03	Acetone 2-Butanone 2-Chloroethylvinyl ether 1,2-Dibromo-3-chloropropane Tetrahydrofuran	0.01976 (≥ 0.05) 0.03462 (≥ 0.05) 0.02857 (≥ 0.05) 0.02947 (≥ 0.05) 0.02467 (≥ 0.05)	All samples in SDG E3I240379	J (all detects) UJ (all non-detects)	A

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a Tier 3 review was performed. Raw data were not evaluated for the samples reviewed by Tier 2 or Tier 1 criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria for samples on which a Tier 3 review was performed. Raw data were not evaluated for the samples reviewed by Tier 2 or Tier 1 criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was within validation criteria for samples on which a Tier 3 review was performed. Raw data were not evaluated for the samples reviewed by Tier 2 or Tier 1 criteria.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

Samples TMW_7_WG092403_0001* and TMW_7_WG092403_0002* were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	TMW_7_WG092403_0001*	TMW_7_WG092403_0002*	
1,1-Dichloroethene	520	530	2
cis-1,2-Dichloroethene	15	50U	200
Trichloroethene	1700	1700	0

XVII. Field Blanks

Sample TB_TAIT092403_0001 was identified as a trip blank. No volatile contaminants were found in this blank with the following exceptions:

Trip Blank ID	Compound	Concentration (ug/L)
TB_TAIT092403_0001	Acetone	6.2

Sample EB_TAIT092403_0001 was identified as an equipment blank. No volatile contaminants were found in this blank with the following exceptions:

Equipment Blank ID	Compound	Concentration (ug/L)
EB_TAIT092403_0001	Acetone	7.0
	2-Butanone	8.8

Sample FB_TAIT092403_0001 was identified as a field blank. No volatile contaminants were found in this blank.

Boeing Building C-6 EM2303
Volatiles - Data Qualification Summary - SDG E3I240379

SDG	Sample	Compound	Flag	A or P	Reason
E3I240379	TB_TAIT092403_0001 EB_TAIT092403_0001 TMW_7_WG092403_0001* TMW_7_WG092403_0002* TMW_4_WG092403_0001* TMW_6_WG092403_0001** FB_TAIT092403_0001 TMW_1_WG092403_0001* TMW_2_WG092403_0001* DAC_P1_WG092403_0001	Bromoform 1,2-Dibromo-3-chloropropane Vinyl acetate	J (all detects) UJ (all non-detects)	A	Initial calibration (%RSD)
E3I240379	TB_TAIT092403_0001 EB_TAIT092403_0001 TMW_7_WG092403_0001* TMW_7_WG092403_0002* TMW_4_WG092403_0001* TMW_6_WG092403_0001** FB_TAIT092403_0001 TMW_1_WG092403_0001* TMW_2_WG092403_0001* DAC_P1_WG092403_0001	Acetone 2-Butanone 2-Chloroethylvinyl ether 1,2-Dibromo-3-chloropropane Tetrahydrofuran	J (all detects) UJ (all non-detects)	A	Initial calibration (RRF)
E3I240379	TB_TAIT092403_0001 EB_TAIT092403_0001 TMW_7_WG092403_0001* TMW_7_WG092403_0002* TMW_4_WG092403_0001* TMW_6_WG092403_0001** FB_TAIT092403_0001 TMW_1_WG092403_0001* TMW_2_WG092403_0001* DAC_P1_WG092403_0001	Acetone 2-Butanone 2-Chloroethylvinyl ether 1,2-Dibromo-3-chloropropane Tetrahydrofuran	J (all detects) UJ (all non-detects)	A	Continuing calibration (RRF)

Boeing Building C-6 EM2303
Volatiles - Laboratory Blank Data Qualification Summary - SDG E3I240379

No Sample Data Qualified in this SDG

TAIT ENVIRONMENTAL

Client Sample ID: TB_TAIT092403_0001

GC/MS Volatiles

Lot-Sample #....: E3I240379-001 Work Order #....: F04JP1AA Matrix.....: WATER
 Date Sampled....: 09/24/03 Date Received...: 09/24/03 16:10
 Prep Date.....: 09/24/03 Analysis Date...: 09/24/03
 Prep Batch #....: 3268215 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Dichlorodifluoromethane	ND	1.0	ug/L
Chloromethane	ND	2.0	ug/L
Chloroethane	ND	2.0	ug/L
Bromomethane	ND	2.0	ug/L
Trichlorofluoromethane	ND	2.0	ug/L
1,1,2-Trichlorotrifluoro-ethane	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
Methylene chloride	ND	1.0	ug/L
Methyl tert-butyl ether	ND	1.0	ug/L
Carbon disulfide	ND	1.0	ug/L
Acetone	6.2 J	10	ug/L
trans-1,2-Dichloroethene	ND	1.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
2,2-Dichloropropane	ND	1.0	ug/L
cis-1,2-Dichloroethene	ND	1.0	ug/L
Chloroform	ND	1.0	ug/L
Bromochloromethane	ND	1.0	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
2-Butanone	ND MJ	5.0	ug/L
1,1-Dichloropropene	ND	1.0	ug/L
Carbon tetrachloride	ND	0.50	ug/L
1,2-Dibromoethane	ND	1.0	ug/L
Benzene	ND	1.0	ug/L
Trichloroethene	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
Toluene	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
1,2-Dichloroethane	ND	0.50	ug/L
Tetrachloroethene	ND	1.0	ug/L
2-Hexanone	ND	5.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Vinyl chloride	ND	0.50	ug/L
Xylenes (total)	ND	1.0	ug/L
Styrene	ND	1.0	ug/L
Bromoform	ND MJ	1.0	ug/L

(Continued on next page)

TAIT ENVIRONMENTAL

Client Sample ID: TB_TAIT092403_0001

GC/MS Volatiles

Lot-Sample #....: E3I240379-001 Work Order #....: F04JP1AA Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Isopropylbenzene	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
1,2,3-Trichloropropane	ND	1.0	ug/L
n-Propylbenzene	ND	1.0	ug/L
Bromobenzene	ND	1.0	ug/L
1,3,5-Trimethylbenzene	ND	1.0	ug/L
2-Chlorotoluene	ND	1.0	ug/L
4-Chlorotoluene	ND	1.0	ug/L
tert-Butylbenzene	ND	1.0	ug/L
1,2,4-Trimethylbenzene	ND	1.0	ug/L
sec-Butylbenzene	ND	1.0	ug/L
p-Isopropyltoluene	ND	1.0	ug/L
1,3-Dichlorobenzene	ND	1.0	ug/L
1,4-Dichlorobenzene	ND	1.0	ug/L
n-Butylbenzene	ND	1.0	ug/L
1,2-Dichlorobenzene	ND	1.0	ug/L
1,2-Dibromo-3-chloro- propane	ND UJ	2.0	ug/L
1,2,4-Trichloro- benzene	ND	1.0	ug/L
Hexachlorobutadiene	ND	1.0	ug/L
1,2,3-Trichlorobenzene	ND	1.0	ug/L
Acrolein	ND	20	ug/L
Acrylonitrile	ND	20	ug/L
Iodomethane	ND	2.0	ug/L
2-Chloroethyl vinyl ether	ND UJ	5.0	ug/L
Tetrahydrofuran	ND UJ	10	ug/L
Vinyl acetate	ND UJ	5.0	ug/L
SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS	
Bromofluorobenzene	96	(75 - 130)	
1,2-Dichloroethane-d4	90	(65 - 135)	
Toluene-d8	100	(80 - 130)	

NOTE(S):

J Estimated result. Result is less than RL.

TAIT ENVIRONMENTAL

Client Sample ID: EB_TAIT092403_0001

GC/MS Volatiles

Lot-Sample #....: E3I240379-002 Work Order #....: F04JW1AA Matrix.....: WATER
 Date Sampled....: 09/24/03 09:40 Date Received...: 09/24/03 16:10
 Prep Date.....: 09/24/03 Analysis Date...: 09/24/03
 Prep Batch #....: 3268215 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Dichlorodifluoromethane	ND	1.0	ug/L
Chloromethane	ND	2.0	ug/L
Chloroethane	ND	2.0	ug/L
Bromomethane	ND	2.0	ug/L
Trichlorofluoromethane	ND	2.0	ug/L
1,1,2-Trichlorotrifluoro-ethane	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
Methylene chloride	ND	1.0	ug/L
Methyl tert-butyl ether	ND	1.0	ug/L
Carbon disulfide	ND	1.0	ug/L
Acetone	7.0 J J	10	ug/L
trans-1,2-Dichloroethene	ND	1.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
2,2-Dichloropropane	ND	1.0	ug/L
cis-1,2-Dichloroethene	ND	1.0	ug/L
Chloroform	ND	1.0	ug/L
Bromochloromethane	ND	1.0	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
2-Butanone	8.8 J	5.0	ug/L
1,1-Dichloropropene	ND	1.0	ug/L
Carbon tetrachloride	ND	0.50	ug/L
1,2-Dibromoethane	ND	1.0	ug/L
Benzene	ND	1.0	ug/L
Trichloroethene	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
Toluene	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
1,2-Dichloroethane	ND	0.50	ug/L
Tetrachloroethene	ND	1.0	ug/L
2-Hexanone	ND	5.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Vinyl chloride	ND	0.50	ug/L
Xylenes (total)	ND	1.0	ug/L
Styrene	ND	1.0	ug/L
Bromoform	ND WJ	1.0	ug/L

(Continued on next page)

TAIT ENVIRONMENTAL

Client Sample ID: EB_TAIT092403_0001

GC/MS Volatiles

Lot-Sample #....: E3I240379-002 Work Order #....: F04JW1AA Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Isopropylbenzene	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
1,2,3-Trichloropropane	ND	1.0	ug/L
n-Propylbenzene	ND	1.0	ug/L
Bromobenzene	ND	1.0	ug/L
1,3,5-Trimethylbenzene	ND	1.0	ug/L
2-Chlorotoluene	ND	1.0	ug/L
4-Chlorotoluene	ND	1.0	ug/L
tert-Butylbenzene	ND	1.0	ug/L
1,2,4-Trimethylbenzene	ND	1.0	ug/L
sec-Butylbenzene	ND	1.0	ug/L
p-Isopropyltoluene	ND	1.0	ug/L
1,3-Dichlorobenzene	ND	1.0	ug/L
1,4-Dichlorobenzene	ND	1.0	ug/L
n-Butylbenzene	ND	1.0	ug/L
1,2-Dichlorobenzene	ND	1.0	ug/L
1,2-Dibromo-3-chloro- propane	ND <i>W</i>	2.0	ug/L
1,2,4-Trichloro- benzene	ND	1.0	ug/L
Hexachlorobutadiene	ND	1.0	ug/L
1,2,3-Trichlorobenzene	ND	1.0	ug/L
Acrolein	ND	20	ug/L
Acrylonitrile	ND	20	ug/L
Iodomethane	ND	2.0	ug/L
2-Chloroethyl vinyl ether	ND <i>W</i>	5.0	ug/L
Tetrahydrofuran	ND	10	ug/L
Vinyl acetate	ND <i>↓</i>	5.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	99	(75 - 130)
1,2-Dichloroethane-d4	98	(65 - 135)
Toluene-d8	98	(80 - 130)

NOTE(S):

J Estimated result. Result is less than RL.

W

TAIT ENVIRONMENTAL

Client Sample ID: TMW_7_WG092403_0001

GC/MS Volatiles

Lot-Sample #....: E3I240379-003 Work Order #....: F04J21AA Matrix.....: WATER
 Date Sampled....: 09/24/03 10:20 Date Received...: 09/24/03 16:10
 Prep Date.....: 09/24/03 Analysis Date...: 09/24/03
 Prep Batch #....: 3268215 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING	
		LIMIT	UNITS
Dichlorodifluoromethane	ND	50	ug/L
Chloromethane	ND	100	ug/L
Chloroethane	ND	100	ug/L
Bromomethane	ND	100	ug/L
Trichlorofluoromethane	ND	100	ug/L
1,1,2-Trichlorotrifluoro-ethane	ND	50	ug/L
1,1-Dichloroethene	520	50	ug/L
Methylene chloride	ND	50	ug/L
Methyl tert-butyl ether	ND	50	ug/L
Carbon disulfide	ND	50	ug/L
Acetone	ND <i>WJ</i>	500	ug/L
trans-1,2-Dichloroethene	ND	50	ug/L
1,1-Dichloroethane	ND	50	ug/L
2,2-Dichloropropane	ND	50	ug/L
cis-1,2-Dichloroethene	15 J	50	ug/L
Chloroform	ND	50	ug/L
Bromochloromethane	ND	50	ug/L
1,1,1-Trichloroethane	ND	50	ug/L
2-Butanone	ND <i>WJ</i>	250	ug/L
1,1-Dichloropropene	ND	50	ug/L
Carbon tetrachloride	ND	25	ug/L
1,2-Dibromoethane	ND	50	ug/L
Benzene	ND	50	ug/L
Trichloroethene	1700	50	ug/L
Bromodichloromethane	ND	50	ug/L
4-Methyl-2-pentanone	ND	250	ug/L
Toluene	ND	50	ug/L
1,1,2-Trichloroethane	ND	50	ug/L
1,2-Dichloroethane	ND	25	ug/L
Tetrachloroethene	ND	50	ug/L
2-Hexanone	ND	250	ug/L
Dibromochloromethane	ND	50	ug/L
Chlorobenzene	ND	50	ug/L
1,1,1,2-Tetrachloroethane	ND	50	ug/L
Ethylbenzene	ND	50	ug/L
Vinyl chloride	ND	25	ug/L
Xylenes (total)	ND	50	ug/L
Styrene	ND	50	ug/L
Bromoform	ND <i>WJ</i>	50	ug/L

(Continued on next page)

WJ

TAIT ENVIRONMENTAL

Client Sample ID: TMW_7_WG092403_0001

GC/MS Volatiles

Lot-Sample #....: E3I240379-003 Work Order #....: F04J21AA Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Isopropylbenzene	ND	50	ug/L
1,1,2,2-Tetrachloroethane	ND	50	ug/L
1,2,3-Trichloropropane	ND	50	ug/L
n-Propylbenzene	ND	50	ug/L
Bromobenzene	ND	50	ug/L
1,3,5-Trimethylbenzene	ND	50	ug/L
2-Chlorotoluene	ND	50	ug/L
4-Chlorotoluene	ND	50	ug/L
tert-Butylbenzene	ND	50	ug/L
1,2,4-Trimethylbenzene	ND	50	ug/L
sec-Butylbenzene	ND	50	ug/L
p-Isopropyltoluene	ND	50	ug/L
1,3-Dichlorobenzene	ND	50	ug/L
1,4-Dichlorobenzene	ND	50	ug/L
n-Butylbenzene	ND	50	ug/L
1,2-Dichlorobenzene	ND	50	ug/L
1,2-Dibromo-3-chloro- propane	ND W	100	ug/L
1,2,4-Trichloro- benzene	ND	50	ug/L
Hexachlorobutadiene	ND	50	ug/L
1,2,3-Trichlorobenzene	ND	50	ug/L
Acrolein	ND	1000	ug/L
Acrylonitrile	ND	1000	ug/L
Iodomethane	ND	100	ug/L
2-Chloroethyl vinyl ether	ND W	250	ug/L
Tetrahydrofuran	ND	500	ug/L
Vinyl acetate	ND	250	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	94	(75 - 130)
1,2-Dichloroethane-d4	91	(65 - 135)
Toluene-d8	98	(80 - 130)

NOTE(S) :

J Estimated result. Result is less than RL.

[Handwritten signature]

TAIT ENVIRONMENTAL

Client Sample ID: TMW_7_WG092403_0002

GC/MS Volatiles

Lot-Sample #....: E3I240379-004 Work Order #....: F04J41AA Matrix.....: WATER
 Date Sampled....: 09/24/03 10:20 Date Received...: 09/24/03 16:10
 Prep Date.....: 09/24/03 Analysis Date...: 09/24/03
 Prep Batch #....: 3268215 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING	
		LIMIT	UNITS
Dichlorodifluoromethane	ND	50	ug/L
Chloromethane	ND	100	ug/L
Chloroethane	ND	100	ug/L
Bromomethane	ND	100	ug/L
Trichlorofluoromethane	ND	100	ug/L
1,1,2-Trichlorotrifluoro-ethane	ND	50	ug/L
1,1-Dichloroethene	530	50	ug/L
Methylene chloride	ND	50	ug/L
Methyl tert-butyl ether	ND	50	ug/L
Carbon disulfide	ND	50	ug/L
Acetone	ND <i>WJ</i>	500	ug/L
trans-1,2-Dichloroethene	ND	50	ug/L
1,1-Dichloroethane	ND	50	ug/L
2,2-Dichloropropane	ND	50	ug/L
cis-1,2-Dichloroethene	ND	50	ug/L
Chloroform	ND	50	ug/L
Bromochloromethane	ND	50	ug/L
1,1,1-Trichloroethane	ND	50	ug/L
2-Butanone	ND <i>WJ</i>	250	ug/L
1,1-Dichloropropene	ND	50	ug/L
Carbon tetrachloride	ND	25	ug/L
1,2-Dibromoethane	ND	50	ug/L
Benzene	ND	50	ug/L
Trichloroethene	1700	50	ug/L
Bromodichloromethane	ND	50	ug/L
4-Methyl-2-pentanone	ND	250	ug/L
Toluene	ND	50	ug/L
1,1,2-Trichloroethane	ND	50	ug/L
1,2-Dichloroethane	ND	25	ug/L
Tetrachloroethene	ND	50	ug/L
2-Hexanone	ND	250	ug/L
Dibromochloromethane	ND	50	ug/L
Chlorobenzene	ND	50	ug/L
1,1,1,2-Tetrachloroethane	ND	50	ug/L
Ethylbenzene	ND	50	ug/L
Vinyl chloride	ND	25	ug/L
Xylenes (total)	ND	50	ug/L
Styrene	ND	50	ug/L
Bromoform	ND <i>WJ</i>	50	ug/L

(Continued on next page)

TAIT ENVIRONMENTAL

Client Sample ID: TMW_7_WG092403_0002

GC/MS Volatiles

Lot-Sample #....: E3I240379-004 Work Order #....: F04J41AA Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Isopropylbenzene	ND	50	ug/L
1,1,2,2-Tetrachloroethane	ND	50	ug/L
1,2,3-Trichloropropane	ND	50	ug/L
n-Propylbenzene	ND	50	ug/L
Bromobenzene	ND	50	ug/L
1,3,5-Trimethylbenzene	ND	50	ug/L
2-Chlorotoluene	ND	50	ug/L
4-Chlorotoluene	ND	50	ug/L
tert-Butylbenzene	ND	50	ug/L
1,2,4-Trimethylbenzene	ND	50	ug/L
sec-Butylbenzene	ND	50	ug/L
p-Isopropyltoluene	ND	50	ug/L
1,3-Dichlorobenzene	ND	50	ug/L
1,4-Dichlorobenzene	ND	50	ug/L
n-Butylbenzene	ND	50	ug/L
1,2-Dichlorobenzene	ND	50	ug/L
1,2-Dibromo-3-chloro- propane	ND <i>W</i>	100	ug/L
1,2,4-Trichloro- benzene	ND	50	ug/L
Hexachlorobutadiene	ND	50	ug/L
1,2,3-Trichlorobenzene	ND	50	ug/L
Acrolein	ND	1000	ug/L
Acrylonitrile	ND	1000	ug/L
Iodomethane	ND	100	ug/L
2-Chloroethyl vinyl ether	ND <i>W</i>	250	ug/L
Tetrahydrofuran	ND	500	ug/L
Vinyl acetate	ND <i>↓</i>	250	ug/L
SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS	
Bromofluorobenzene	94	(75 - 130)	
1,2-Dichloroethane-d4	95	(65 - 135)	
Toluene-d8	96	(80 - 130)	

W

TAIT ENVIRONMENTAL

Client Sample ID: TMW_4_WG092403_0001

GC/MS Volatiles

Lot-Sample #....: E3I240379-005 Work Order #....: F04J51AA Matrix.....: WATER
 Date Sampled....: 09/24/03 11:10 Date Received...: 09/24/03 16:10
 Prep Date.....: 09/25/03 Analysis Date...: 09/25/03
 Prep Batch #....: 3268215 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING	
		LIMIT	UNITS
Dichlorodifluoromethane	ND	50	ug/L
Chloromethane	ND	100	ug/L
Chloroethane	ND	100	ug/L
Bromomethane	ND	100	ug/L
Trichlorofluoromethane	ND	100	ug/L
1,1,2-Trichlorotrifluoro-ethane	ND	50	ug/L
1,1-Dichloroethene	1400	50	ug/L
Methylene chloride	ND	50	ug/L
Methyl tert-butyl ether	ND	50	ug/L
Carbon disulfide	ND	50	ug/L
Acetone	ND W	500	ug/L
trans-1,2-Dichloroethene	32 J	50	ug/L
1,1-Dichloroethane	23 J	50	ug/L
2,2-Dichloropropane	ND	50	ug/L
cis-1,2-Dichloroethene	48 J	50	ug/L
Chloroform	ND	50	ug/L
Bromochloromethane	ND	50	ug/L
1,1,1-Trichloroethane	ND	50	ug/L
2-Butanone	ND W	250	ug/L
1,1-Dichloropropene	ND	50	ug/L
Carbon tetrachloride	ND	25	ug/L
1,2-Dibromoethane	ND	50	ug/L
Benzene	ND	50	ug/L
Trichloroethene	2200	50	ug/L
Bromodichloromethane	ND	50	ug/L
4-Methyl-2-pentanone	ND	250	ug/L
Toluene	ND	50	ug/L
1,1,2-Trichloroethane	ND	50	ug/L
1,2-Dichloroethane	ND	25	ug/L
Tetrachloroethene	ND	50	ug/L
2-Hexanone	ND	250	ug/L
Dibromochloromethane	ND	50	ug/L
Chlorobenzene	ND	50	ug/L
1,1,1,2-Tetrachloroethane	ND	50	ug/L
Ethylbenzene	ND	50	ug/L
Vinyl chloride	ND	25	ug/L
Xylenes (total)	ND	50	ug/L
Styrene	ND	50	ug/L
Bromoform	ND W	50	ug/L

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TAIT ENVIRONMENTAL

Client Sample ID: TMW_4_WG092403_0001

GC/MS Volatiles

Lot-Sample #....: E3I240379-005 Work Order #....: F04J51AA Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Isopropylbenzene	ND	50	ug/L
1,1,2,2-Tetrachloroethane	ND	50	ug/L
1,2,3-Trichloropropane	ND	50	ug/L
n-Propylbenzene	ND	50	ug/L
Bromobenzene	ND	50	ug/L
1,3,5-Trimethylbenzene	ND	50	ug/L
2-Chlorotoluene	ND	50	ug/L
4-Chlorotoluene	ND	50	ug/L
tert-Butylbenzene	ND	50	ug/L
1,2,4-Trimethylbenzene	ND	50	ug/L
sec-Butylbenzene	ND	50	ug/L
p-Isopropyltoluene	ND	50	ug/L
1,3-Dichlorobenzene	ND	50	ug/L
1,4-Dichlorobenzene	ND	50	ug/L
n-Butylbenzene	ND	50	ug/L
1,2-Dichlorobenzene	ND	50	ug/L
1,2-Dibromo-3-chloro- propane	ND W	100	ug/L
1,2,4-Trichloro- benzene	ND	50	ug/L
Hexachlorobutadiene	ND	50	ug/L
1,2,3-Trichlorobenzene	ND	50	ug/L
Acrolein	ND	1000	ug/L
Acrylonitrile	ND	1000	ug/L
Iodomethane	ND	100	ug/L
2-Chloroethyl vinyl ether	ND W	250	ug/L
Tetrahydrofuran	ND ↓	500	ug/L
Vinyl acetate	ND ↓	250	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	96	(75 - 130)
1,2-Dichloroethane-d4	99	(65 - 135)
Toluene-d8	96	(80 - 130)

NOTE(S) :

J Estimated result. Result is less than RL.

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TAIT ENVIRONMENTAL

Client Sample ID: TMW_6_WG092403_0001

GC/MS Volatiles

Lot-Sample #....: E3I240379-006 Work Order #....: F04J61AA Matrix.....: WATER
 Date Sampled....: 09/24/03 11:50 Date Received...: 09/24/03 16:10
 Prep Date.....: 09/25/03 Analysis Date...: 09/25/03
 Prep Batch #....: 3268215 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Dichlorodifluoromethane	ND	5.0	ug/L
Chloromethane	ND	10	ug/L
Chloroethane	ND	10	ug/L
Bromomethane	ND	10	ug/L
Trichlorofluoromethane	ND	10	ug/L
1,1,2-Trichlorotrifluoro-ethane	ND	5.0	ug/L
1,1-Dichloroethene	6.2	5.0	ug/L
Methylene chloride	ND	5.0	ug/L
Methyl tert-butyl ether	ND	5.0	ug/L
Carbon disulfide	ND	5.0	ug/L
Acetone	ND <i>45</i>	50	ug/L
trans-1,2-Dichloroethene	ND	5.0	ug/L
1,1-Dichloroethane	ND	5.0	ug/L
2,2-Dichloropropane	ND	5.0	ug/L
cis-1,2-Dichloroethene	ND	5.0	ug/L
Chloroform	180	5.0	ug/L
Bromochloromethane	ND	5.0	ug/L
1,1,1-Trichloroethane	ND	5.0	ug/L
2-Butanone	ND <i>W</i>	25	ug/L
1,1-Dichloropropene	ND	5.0	ug/L
Carbon tetrachloride	ND	2.5	ug/L
1,2-Dibromoethane	ND	5.0	ug/L
Benzene	ND	5.0	ug/L
Trichloroethene	80	5.0	ug/L
Bromodichloromethane	ND	5.0	ug/L
4-Methyl-2-pentanone	ND	25	ug/L
Toluene	ND	5.0	ug/L
1,1,2-Trichloroethane	ND	5.0	ug/L
1,2-Dichloroethane	ND	2.5	ug/L
Tetrachloroethene	ND	5.0	ug/L
2-Hexanone	ND	25	ug/L
Dibromochloromethane	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
1,1,1,2-Tetrachloroethane	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
Vinyl chloride	ND	2.5	ug/L
Xylenes (total)	ND	5.0	ug/L
Styrene	ND	5.0	ug/L
Bromoform	ND <i>W</i>	5.0	ug/L

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TAIT ENVIRONMENTAL

Client Sample ID: TMW_6_WG092403_0001

GC/MS Volatiles

Lot-Sample #....: E3I240379-006 Work Order #....: F04J61AA Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Isopropylbenzene	ND	5.0	ug/L
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L
1,2,3-Trichloropropane	ND	5.0	ug/L
n-Propylbenzene	ND	5.0	ug/L
Bromobenzene	ND	5.0	ug/L
1,3,5-Trimethylbenzene	ND	5.0	ug/L
2-Chlorotoluene	ND	5.0	ug/L
4-Chlorotoluene	ND	5.0	ug/L
tert-Butylbenzene	ND	5.0	ug/L
1,2,4-Trimethylbenzene	ND	5.0	ug/L
sec-Butylbenzene	ND	5.0	ug/L
p-Isopropyltoluene	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
n-Butylbenzene	ND	5.0	ug/L
1,2-Dichlorobenzene	ND	5.0	ug/L
1,2-Dibromo-3-chloro- propane	ND <i>W</i>	10	ug/L
1,2,4-Trichloro- benzene	ND	5.0	ug/L
Hexachlorobutadiene	ND	5.0	ug/L
1,2,3-Trichlorobenzene	ND	5.0	ug/L
Acrolein	ND	100	ug/L
Acrylonitrile	ND	100	ug/L
Iodomethane	ND	10	ug/L
2-Chloroethyl vinyl ether	ND <i>W</i>	25	ug/L
Tetrahydrofuran	ND	50	ug/L
Vinyl acetate	ND <i>↓</i>	25	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	97	(75 - 130)
1,2-Dichloroethane-d4	100	(65 - 135)
Toluene-d8	98	(80 - 130)

W182

TAIT ENVIRONMENTAL

Client Sample ID: FB_TAIT092403_0001

GC/MS Volatiles

Lot-Sample #....: E3I240379-007 Work Order #....: F04J81AA Matrix.....: WATER
 Date Sampled....: 09/24/03 13:15 Date Received...: 09/24/03 16:10
 Prep Date.....: 09/24/03 Analysis Date...: 09/24/03
 Prep Batch #....: 3268215 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Dichlorodifluoromethane	ND	1.0	ug/L
Chloromethane	ND	2.0	ug/L
Chloroethane	ND	2.0	ug/L
Bromomethane	ND	2.0	ug/L
Trichlorofluoromethane	ND	2.0	ug/L
1,1,2-Trichlorotrifluoro-ethane	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
Methylene chloride	ND	1.0	ug/L
Methyl tert-butyl ether	ND	1.0	ug/L
Carbon disulfide	ND	1.0	ug/L
Acetone	13 J	10	ug/L
trans-1,2-Dichloroethene	ND	1.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
2,2-Dichloropropane	ND	1.0	ug/L
cis-1,2-Dichloroethene	ND	1.0	ug/L
Chloroform	ND	1.0	ug/L
Bromochloromethane	ND	1.0	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
2-Butanone	9.3 J	5.0	ug/L
1,1-Dichloropropene	ND	1.0	ug/L
Carbon tetrachloride	ND	0.50	ug/L
1,2-Dibromoethane	ND	1.0	ug/L
Benzene	ND	1.0	ug/L
Trichloroethene	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
Toluene	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
1,2-Dichloroethane	ND	0.50	ug/L
Tetrachloroethene	ND	1.0	ug/L
2-Hexanone	ND	5.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Vinyl chloride	ND	0.50	ug/L
Xylenes (total)	ND	1.0	ug/L
Styrene	ND	1.0	ug/L
Bromoform	ND WJ	1.0	ug/L

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TAIT ENVIRONMENTAL

Client Sample ID: FB_TAIT092403_0001

GC/MS Volatiles

Lot-Sample #....: E3I240379-007 Work Order #....: F04J81AA Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Isopropylbenzene	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
1,2,3-Trichloropropane	ND	1.0	ug/L
n-Propylbenzene	ND	1.0	ug/L
Bromobenzene	ND	1.0	ug/L
1,3,5-Trimethylbenzene	ND	1.0	ug/L
2-Chlorotoluene	ND	1.0	ug/L
4-Chlorotoluene	ND	1.0	ug/L
tert-Butylbenzene	ND	1.0	ug/L
1,2,4-Trimethylbenzene	ND	1.0	ug/L
sec-Butylbenzene	ND	1.0	ug/L
p-Isopropyltoluene	ND	1.0	ug/L
1,3-Dichlorobenzene	ND	1.0	ug/L
1,4-Dichlorobenzene	ND	1.0	ug/L
n-Butylbenzene	ND	1.0	ug/L
1,2-Dichlorobenzene	ND	1.0	ug/L
1,2-Dibromo-3-chloro- propane	ND W	2.0	ug/L
1,2,4-Trichloro- benzene	ND	1.0	ug/L
Hexachlorobutadiene	ND	1.0	ug/L
1,2,3-Trichlorobenzene	ND	1.0	ug/L
Acrolein	ND	20	ug/L
Acrylonitrile	ND	20	ug/L
Iodomethane	ND	2.0	ug/L
2-Chloroethyl vinyl ether	ND W	5.0	ug/L
Tetrahydrofuran	ND ↓	10	ug/L
Vinyl acetate	ND ↓	5.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	97	(75 - 130)
1,2-Dichloroethane-d4	99	(65 - 135)
Toluene-d8	98	(80 - 130)

WML

TAIT ENVIRONMENTAL

Client Sample ID: TMW_1_WG092403_0001

GC/MS Volatiles

Lot-Sample #....: E3I240379-008 Work Order #....: F04J91AA Matrix.....: WATER
 Date Sampled....: 09/24/03 13:20 Date Received...: 09/24/03 16:10
 Prep Date.....: 09/25/03 Analysis Date...: 09/25/03
 Prep Batch #....: 3268215 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Dichlorodifluoromethane	ND	25	ug/L
Chloromethane	ND	50	ug/L
Chloroethane	ND	50	ug/L
Bromomethane	ND	50	ug/L
Trichlorofluoromethane	36 J	50	ug/L
1,1,2-Trichlorotrifluoro-ethane	ND	25	ug/L
1,1-Dichloroethene	180	25	ug/L
Methylene chloride	ND	25	ug/L
Methyl tert-butyl ether	ND	25	ug/L
Carbon disulfide	ND	25	ug/L
Acetone	ND WJ	250	ug/L
trans-1,2-Dichloroethene	ND	25	ug/L
1,1-Dichloroethane	ND	25	ug/L
2,2-Dichloropropane	ND	25	ug/L
cis-1,2-Dichloroethene	ND	25	ug/L
Chloroform	ND	25	ug/L
Bromochloromethane	ND	25	ug/L
1,1,1-Trichloroethane	ND	25	ug/L
2-Butanone	ND WJ	120	ug/L
1,1-Dichloropropene	ND	25	ug/L
Carbon tetrachloride	ND	12	ug/L
1,2-Dibromoethane	ND	25	ug/L
Benzene	ND	25	ug/L
Trichloroethene	1100	25	ug/L
Bromodichloromethane	ND	25	ug/L
4-Methyl-2-pentanone	ND	120	ug/L
Toluene	ND	25	ug/L
1,1,2-Trichloroethane	ND	25	ug/L
1,2-Dichloroethane	ND	12	ug/L
Tetrachloroethene	ND	25	ug/L
2-Hexanone	ND	120	ug/L
Dibromochloromethane	ND	25	ug/L
Chlorobenzene	ND	25	ug/L
1,1,1,2-Tetrachloroethane	ND	25	ug/L
Ethylbenzene	ND	25	ug/L
Vinyl chloride	ND	12	ug/L
Xylenes (total)	ND	25	ug/L
Styrene	ND	25	ug/L
Bromoform	ND WJ	25	ug/L

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TAIT ENVIRONMENTAL

Client Sample ID: TMW_1_WG092403_0001

GC/MS Volatiles

Lot-Sample #....: E3I240379-008 Work Order #....: F04J91AA Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Isopropylbenzene	ND	25	ug/L
1,1,2,2-Tetrachloroethane	ND	25	ug/L
1,2,3-Trichloropropane	ND	25	ug/L
n-Propylbenzene	ND	25	ug/L
Bromobenzene	ND	25	ug/L
1,3,5-Trimethylbenzene	ND	25	ug/L
2-Chlorotoluene	ND	25	ug/L
4-Chlorotoluene	ND	25	ug/L
tert-Butylbenzene	ND	25	ug/L
1,2,4-Trimethylbenzene	ND	25	ug/L
sec-Butylbenzene	ND	25	ug/L
p-Isopropyltoluene	ND	25	ug/L
1,3-Dichlorobenzene	ND	25	ug/L
1,4-Dichlorobenzene	ND	25	ug/L
n-Butylbenzene	ND	25	ug/L
1,2-Dichlorobenzene	ND	25	ug/L
1,2-Dibromo-3-chloro- propane	ND <i>W</i>	50	ug/L
1,2,4-Trichloro- benzene	ND	25	ug/L
Hexachlorobutadiene	ND	25	ug/L
1,2,3-Trichlorobenzene	ND	25	ug/L
Acrolein	ND	500	ug/L
Acrylonitrile	ND	500	ug/L
Iodomethane	ND	50	ug/L
2-Chloroethyl vinyl ether	ND <i>W</i>	120	ug/L
Tetrahydrofuran	ND <i>↓</i>	250	ug/L
Vinyl acetate	ND <i>↓</i>	120	ug/L
SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS	
Bromofluorobenzene	93	(75 - 130)	
1,2-Dichloroethane-d4	96	(65 - 135)	
Toluene-d8	96	(80 - 130)	

NOTE(S) :

J Estimated result. Result is less than RL.

WKS

TAIT ENVIRONMENTAL

Client Sample ID: TMW_2_WG092403_0001

GC/MS Volatiles

Lot-Sample #....: E3I240379-009 Work Order #....: F04KC1AA Matrix.....: WATER
 Date Sampled....: 09/24/03 14:00 Date Received...: 09/24/03 16:10
 Prep Date.....: 09/25/03 Analysis Date...: 09/25/03
 Prep Batch #....: 3268215 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING	
		LIMIT	UNITS
Dichlorodifluoromethane	ND	500	ug/L
Chloromethane	ND	1000	ug/L
Chloroethane	ND	1000	ug/L
Bromomethane	ND	1000	ug/L
Trichlorofluoromethane	ND	1000	ug/L
1,1,2-Trichlorotrifluoroethane	ND	500	ug/L
1,1-Dichloroethene	24000	500	ug/L
Methylene chloride	ND	500	ug/L
Methyl tert-butyl ether	ND	500	ug/L
Carbon disulfide	ND	500	ug/L
Acetone	12000 J	5000	ug/L
trans-1,2-Dichloroethene	450 J	500	ug/L
1,1-Dichloroethane	1400	500	ug/L
2,2-Dichloropropane	ND	500	ug/L
cis-1,2-Dichloroethene	10000	500	ug/L
Chloroform	ND	500	ug/L
Bromochloromethane	ND	500	ug/L
1,1,1-Trichloroethane	600	500	ug/L
2-Butanone	70000 J	2500	ug/L
1,1-Dichloropropene	ND	500	ug/L
Carbon tetrachloride	ND	250	ug/L
1,2-Dibromoethane	ND	500	ug/L
Benzene	ND	500	ug/L
Trichloroethene	7900	500	ug/L
Bromodichloromethane	ND	500	ug/L
4-Methyl-2-pentanone	ND	2500	ug/L
Toluene	2500	500	ug/L
1,1,2-Trichloroethane	ND	500	ug/L
1,2-Dichloroethane	ND	250	ug/L
Tetrachloroethene	ND	500	ug/L
2-Hexanone	ND	2500	ug/L
Dibromochloromethane	ND	500	ug/L
Chlorobenzene	ND	500	ug/L
1,1,1,2-Tetrachloroethane	ND	500	ug/L
Ethylbenzene	ND	500	ug/L
Vinyl chloride	ND	250	ug/L
Xylenes (total)	ND	500	ug/L
Styrene	ND	500	ug/L
Bromoform	ND W5	500	ug/L

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TAIT ENVIRONMENTAL

Client Sample ID: TMW_2_WG092403_0001

GC/MS Volatiles

Lot-Sample #....: E3I240379-009 Work Order #....: F04KC1AA Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Isopropylbenzene	ND	500	ug/L
1,1,2,2-Tetrachloroethane	ND	500	ug/L
1,2,3-Trichloropropane	ND	500	ug/L
n-Propylbenzene	ND	500	ug/L
Bromobenzene	ND	500	ug/L
1,3,5-Trimethylbenzene	ND	500	ug/L
2-Chlorotoluene	ND	500	ug/L
4-Chlorotoluene	ND	500	ug/L
tert-Butylbenzene	ND	500	ug/L
1,2,4-Trimethylbenzene	ND	500	ug/L
sec-Butylbenzene	ND	500	ug/L
p-Isopropyltoluene	ND	500	ug/L
1,3-Dichlorobenzene	ND	500	ug/L
1,4-Dichlorobenzene	ND	500	ug/L
n-Butylbenzene	ND	500	ug/L
1,2-Dichlorobenzene	ND	500	ug/L
1,2-Dibromo-3-chloro- propane	ND W	1000	ug/L
1,2,4-Trichloro- benzene	ND	500	ug/L
Hexachlorobutadiene	ND	500	ug/L
1,2,3-Trichlorobenzene	ND	500	ug/L
Acrolein	ND	10000	ug/L
Acrylonitrile	ND	10000	ug/L
Iodomethane	ND	1000	ug/L
2-Chloroethyl vinyl ether	ND W	2500	ug/L
Tetrahydrofuran	ND	5000	ug/L
Vinyl acetate	ND	2500	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	93	(75 - 130)
1,2-Dichloroethane-d4	95	(65 - 135)
Toluene-d8	96	(80 - 130)

NOTE (S) :

J Estimated result. Result is less than RL.

W118

TAIT ENVIRONMENTAL

Client Sample ID: DAC_P1_WG092403_0001

GC/MS Volatiles

Lot-Sample #....: E3I240379-010 Work Order #....: F04KE1AA Matrix.....: WATER
 Date Sampled....: 09/24/03 15:00 Date Received...: 09/24/03 16:10
 Prep Date.....: 09/25/03 Analysis Date...: 09/25/03
 Prep Batch #....: 3268215 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Dichlorodifluoromethane	ND	250	ug/L
Chloromethane	ND	500	ug/L
Chloroethane	ND	500	ug/L
Bromomethane	ND	500	ug/L
Trichlorofluoromethane	ND	500	ug/L
1,1,2-Trichlorotrifluoro-ethane	ND	250	ug/L
1,1-Dichloroethene	ND	250	ug/L
Methylene chloride	ND	250	ug/L
Methyl tert-butyl ether	ND	250	ug/L
Carbon disulfide	ND	250	ug/L
Acetone	ND <i>WJ</i>	2500	ug/L
trans-1,2-Dichloroethene	ND	250	ug/L
1,1-Dichloroethane	ND	250	ug/L
2,2-Dichloropropane	ND	250	ug/L
cis-1,2-Dichloroethene	120 J	250	ug/L
Chloroform	ND	250	ug/L
Bromochloromethane	ND	250	ug/L
1,1,1-Trichloroethane	ND	250	ug/L
2-Butanone	ND <i>WJ</i>	1200	ug/L
1,1-Dichloropropene	ND	250	ug/L
Carbon tetrachloride	ND	120	ug/L
1,2-Dibromoethane	ND	250	ug/L
Benzene	ND	250	ug/L
Trichloroethene	12000	250	ug/L
Bromodichloromethane	ND	250	ug/L
4-Methyl-2-pentanone	ND	1200	ug/L
Toluene	ND	250	ug/L
1,1,2-Trichloroethane	ND	250	ug/L
1,2-Dichloroethane	ND	120	ug/L
Tetrachloroethene	ND	250	ug/L
2-Hexanone	ND	1200	ug/L
Dibromochloromethane	ND	250	ug/L
Chlorobenzene	ND	250	ug/L
1,1,1,2-Tetrachloroethane	ND	250	ug/L
Ethylbenzene	ND	250	ug/L
Vinyl chloride	ND	120	ug/L
Xylenes (total)	ND	250	ug/L
Styrene	ND	250	ug/L
Bromoform	ND <i>WJ</i>	250	ug/L

(Continued on next page)

WJ

TAIT ENVIRONMENTAL

Client Sample ID: DAC_P1_WG092403_0001

GC/MS Volatiles

Lot-Sample #....: E3I240379-010 Work Order #....: F04KE1AA Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Isopropylbenzene	ND	250	ug/L
1,1,2,2-Tetrachloroethane	ND	250	ug/L
1,2,3-Trichloropropane	ND	250	ug/L
n-Propylbenzene	ND	250	ug/L
Bromobenzene	ND	250	ug/L
1,3,5-Trimethylbenzene	ND	250	ug/L
2-Chlorotoluene	ND	250	ug/L
4-Chlorotoluene	ND	250	ug/L
tert-Butylbenzene	ND	250	ug/L
1,2,4-Trimethylbenzene	ND	250	ug/L
sec-Butylbenzene	ND	250	ug/L
p-Isopropyltoluene	ND	250	ug/L
1,3-Dichlorobenzene	ND	250	ug/L
1,4-Dichlorobenzene	ND	250	ug/L
n-Butylbenzene	ND	250	ug/L
1,2-Dichlorobenzene	ND	250	ug/L
1,2-Dibromo-3-chloro- propane	ND <i>W</i>	500	ug/L
1,2,4-Trichloro- benzene	ND	250	ug/L
Hexachlorobutadiene	ND	250	ug/L
1,2,3-Trichlorobenzene	ND	250	ug/L
Acrolein	ND	5000	ug/L
Acrylonitrile	ND	5000	ug/L
Iodomethane	ND	500	ug/L
2-Chloroethyl vinyl ether	ND <i>W</i>	1200	ug/L
Tetrahydrofuran	ND <i>J</i>	2500	ug/L
Vinyl acetate	ND <i>J</i>	1200	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	94	(75 - 130)
1,2-Dichloroethane-d4	96	(65 - 135)
Toluene-d8	98	(80 - 130)

NOTE(S) :

J Estimated result. Result is less than RL.

LDC #: 11095A1

VALIDATION COMPLETENESS WORKSHEET

Date: 11/18/03

SDG #: ~~E2303~~ E3I 240 379 EPA Region 1 - Tier I/II/III

Page: 1 of 1

Laboratory: Severn Trent Laboratories, Inc.

Reviewer: *[Signature]*2nd Reviewer: *[Signature]*

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 9/24/03
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	SW	
IV.	Continuing calibration	SW	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	Not reviewed for Tier II validation.
XII.	Compound quantitation/CRQLs	A	Not reviewed for Tier II validation.
XIII.	Tentatively identified compounds (TICs)	N	Not reviewed for Tier II validation. not reported
XIV.	System performance	A	Not reviewed for Tier II validation.
XV.	Overall assessment of data	A	
XVI.	Field duplicates	SW	D = 3 & 4
XVII.	Field blanks	TIER 1 samples ✓	TB = 1 EB = 2 FB = 7

Note: A = Acceptable
N = Not provided/applicable
SW = See worksheet

ND = No compounds detected
R = Rinsate
FB = Field blank

D = Duplicate
TB = Trip blank
EB = Equipment blank

Validated Samples: ** Indicates sample underwent Tier III validation

* Indicates sample underwent Tier II validation, the rest are Tier I validation.

1	TB_TAIT092403_0001	11	TMW_7_WG092403_0001MS	21		31	
2	EB_TAIT092403_0001	12	TMW_7_WG092403_0001MSD	22		32	
3	TMW_7_WG092403_0001*	13	E3I250000-215	23		33	
4	TMW_7_WG092403_0002*	14		24		34	
5	TMW_4_WG092403_0001*	15		25		35	
6	TMW_6_WG092403_0001**	16		26		36	
7	FB_TAIT092403_0001	17		27		37	
8	TMW_1_WG092403_0001*	18		28		38	
9	TMW_2_WG092403_0001*	19		29		39	
10	DAC_P1_WG092403_0001	20		30		40	

LDC #: 11095A
SDG #: EL303

VALIDATION FINDINGS CHECKLIST

Page: 1 of 3
Reviewer: AF
2nd Reviewer: AF

Method: Volatiles (EPA SW 846 Method 8260B)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. GC/MS Instrument performance check				
Were the BFB performance results reviewed and found to be within the specified criteria?	✓			
Were all samples analyzed within the 12 hour clock criteria?	✓			
III. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	✓			
Was a curve fit used for evaluation? If Yes, what was the acceptance criteria used?		✓		
Did the initial calibration meet the curve fit acceptance criteria?			✓	
Were all percent relative standard deviations (%RSD) ≤ 30% and relative response factors (RRF) ≥ 0.05?		✓		
IV. Continuing calibration				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	✓			
Were all percent differences (%D) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	✓			
Were all percent differences (%D) ≤ 25% and relative response factors (RRF) ≥ 0.05?		✓		
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed at least once every 12 hours for each matrix and concentration?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Surrogate spikes				
Were all surrogate %R within QC limits?	✓			
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?			✓	
VII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	✓			
Was a MS/MSD analyzed every 20 samples of each matrix?	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	✓			

LDC #: 1109SA 1
SDG #: E2303

VALIDATION FINDINGS CHECKLIST

Page: 3
Reviewer: AF
2nd Reviewer: AF

Validation Area	Yes	No	NA	Findings/Comments
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was an LCS analyzed per analytical batch?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Were the performance evaluation (PE) samples within the acceptance limits?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
X. Internal standards				
Were internal standard area counts within -50% or +100% of the associated calibration standard?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were retention times within ± 30 seconds of the associated calibration standard?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
XI. Target compound identification				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were chromatogram peaks verified and accounted for?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
XII. Compound quantitation/CRQLs				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
XIII. Tentatively identified compounds (TICs)				
Were the major ions (> 10 percent relative intensity) in the reference spectrum evaluated in sample spectrum?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Were relative intensities of the major ions within $\pm 20\%$ between the sample and the reference spectra?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
XIV. System performance				
System performance was found to be acceptable.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
XVI. Field duplicates				
Field duplicate pairs were identified in this SDG.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Target compounds were detected in the field duplicates.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

LDC #: 1109SA1
SDG #: E2303

VALIDATION FINDINGS CHECKLIST

Page: 3 of 3
Reviewer: [Signature]
2nd Reviewer: [Signature]

Validation Area	Yes	No	NA	Findings/Comments
XVII. Field blanks				
Field blanks were identified in this SDG.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Target compounds were detected in the field blanks.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

TARGET COMPOUND WORKSHEET

METHOD: VOA (EPA SW 846 Method 8260B)

A. Chloromethane*	S. Trichloroethene	KK. Trichlorofluoromethane	CCC. tert-Butylbenzene	UUU. 1,2-Dichlorotetrafluoroethane
B. Bromomethane	T. Dibromochloromethane	LL. Methyl-tert-butyl ether	DDD. 1,2,4-Trimethylbenzene	VVV. 4-Ethyltoluene
C. Vinyl chloride**	U. 1,1,2-Trichloroethane	MM. 1,2-Dibromo-3-chloropropane	EEE. sec-Butylbenzene	WWW. Ethanol
D. Chloroethane	V. Benzene	NN. Methyl ethyl ketone	FFF. 1,3-Dichlorobenzene	XXX. Di-isopropyl ether
E. Methylene chloride	W. trans-1,3-Dichloropropene	OO. 2,2-Dichloropropane	GGG. p-Isopropyltoluene	YYY. tert-Butanol
F. Acetone	X. Bromoform*	PP. Bromochloromethane	HHH. 1,4-Dichlorobenzene	ZZZ. tert-Butyl alcohol
G. Carbon disulfide	Y. 4-Methyl-2-pentanone	QQ. 1,1-Dichloropropene	III. n-Butylbenzene	AAAA. Ethyl tert-butyl ether
H. 1,1-Dichloroethene**	Z. 2-Hexanone	RR. Dibromomethane	JJJ. 1,2-Dichlorobenzene	BBBB. tert-Amyl methyl ether
I. 1,1-Dichloroethane*	AA. Tetrachloroethene	SS. 1,3-Dichloropropane	KKK. 1,2,4-Trichlorobenzene	CCCC. 1-Chlorohexane
J. 1,2-Dichloroethene, total	BB. 1,1,2,2-Tetrachloroethane*	TT. 1,2-Dibromoethane	LLL. Hexachlorobutadiene	DDDD. Isopropyl alcohol
K. Chloroform**	CC. Toluene**	UU. 1,1,1,2-Tetrachloroethane	MMM. Naphthalene	EEEE. Acetonitrile
L. 1,2-Dichloroethane	DD. Chlorobenzene*	VV. Isopropylbenzene	NNN. 1,2,3-Trichlorobenzene	FFFF. Acrolein
M. 2-Butanone	EE. Ethylbenzene**	WW. Bromobenzene	OOO. 1,3,5-Trichlorobenzene	GGGG. Acrylonitrile
N. 1,1,1-Trichloroethane	FF. Styrene	XX. 1,2,3-Trichloropropane	PPP. trans-1,2-Dichloroethene	HHHH. 1,4-Dioxane
O. Carbon tetrachloride	GG. Xylenes, total	YY. n-Propylbenzene	QQQ. cis-1,2-Dichloroethene	IIII. Isobutyl alcohol
P. Bromodichloromethane	HH. Vinyl acetate	ZZ. 2-Chlorotoluene	RRR. m,p-Xylenes	JJJJ. Methacrylonitrile
Q. 1,2-Dichloropropane**	II. 2-Chloroethylvinyl ether	AAA. 1,3,5-Trimethylbenzene	SSS. o-Xylene	KKKK. Propionitrile
R. cis-1,3-Dichloropropene	JJ. Dichlorodifluoromethane	BBB. 4-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	LLLL. Tetrahydrofuran

* = System performance check compounds (SPCC) for RRF ; ** = Calibration check compounds (CCC) for %RSD.

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- | | | | |
|---|---|-----|---|
| Y | N | N/A | Did the laboratory perform a 5 point calibration prior to sample analysis? |
| Y | N | N/A | Were percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCC's and SPCC's? |
| Y | N | N/A | Was a curve fit used for evaluation? If yes, what was the acceptance criteria used for evaluation? _____ |
| Y | N | N/A | Did the initial calibration meet the acceptance criteria? |
| Y | N | N/A | Were all %RSDs and RRFs within the validation criteria of ≤ 30 %RSD and ≥ 0.05 RRF ? |

[illegible]

LDC #: 11095A1
SDG #: E31240379

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Page: 1 of 1
Reviewer: [Signature]
2nd reviewer: [Signature]

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

N/A
Y/N N/A

Were field duplicate pairs identified in this SDG?
Were target compounds detected in the field duplicate pairs?

Compound	Concentration ($\mu\text{g/L}$)		RPD
	3	4	
H	520	530	2
QQQ	15	50M	200
S	1700	1700	0

Compound	Concentration ()		RPD

Compound	Concentration ()		RPD

Compound	Concentration ()		RPD

LDC #: 11095A/
SDG #: E31240379

VALIDATION FINDINGS WORKSHEET
Field Blanks

Page: 1 of 1
Reviewer: FR
2nd reviewer: R

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Y N N/A Were field blanks identified in this SDG?
Y N N/A Were target compounds detected in the field blanks?

Sample: 1 Field Blank (Trip Blank) / Rinsate / Other _____ (circle one)

Compound	Concentration Units (<u>ug/l</u>)
<u>F</u>	<u>6.2</u>

Sample: 2 Field Blank / Trip Blank / Rinsate / Other EB (circle one)

Compound	Concentration Units (<u>ug/l</u>)
<u>F</u>	<u>7.0</u>
<u>M</u>	<u>8.8</u>

Sample: _____ Field Blank / Trip Blank / Rinsate / Other _____ (circle one)

Compound	Concentration Units ()

LDC #: 11095A1
SDG #: E2303

VALIDATION FINDINGS WORKSHEET Initial Calibration Calculation Verification

Page: 1 of 1
Reviewer: [Signature]
2nd Reviewer: [Signature]

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

$$RRF = (A_x)(C_s)/(A_s)(C_x)$$

average RRF = sum of the RRFs/number of standards

$$\%RSD = 100 * (S/X)$$

A_x = Area of compound,

C_x = Concentration of compound,

S = Standard deviation of the RRFs

X = Mean of the RRFs

A_s = Area of associated internal standard

C_s = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Reported	Recalculated	Reported	Recalculated	Reported	Recalculated
				RRF (10 std)	RRF (10 std)	Average RRF (initial)	Average RRF (initial)	%RSD	%RSD
1	8260 BJL	9/23/03	Methylene chloride (1st internal standard)	0.14349	0.14349	0.16435	0.16435	14.810	14.810
			Trichlorethene (2nd internal standard)	1.94716	1.94716	1.91392	1.91392	6.281	6.281
			Toluene (3rd internal standard)	1.36076	1.36076	1.34874	1.34874	4.953	4.953
2			Methylene chloride (1st internal standard)						
			Trichlorethene (2nd internal standard)						
			Toluene (3rd internal standard)						
3			Methylene chloride (1st internal standard)						
			Trichlorethene (2nd internal standard)						
			Toluene (3rd internal standard)						
4			Methylene chloride (1st internal standard)						
			Trichlorethene (2nd internal standard)						
			Toluene (3rd internal standard)						

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 1109SA1
SDG #: E2303

VALIDATION FINDINGS WORKSHEET Continuing Calibration Results Verification

Page: 1 of 1
Reviewer: [Signature]
2nd Reviewer: [Signature]

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

$$\% \text{ Difference} = 100 * (\text{ave. RRF} - \text{RRF}) / \text{ave. RRF}$$

$$\text{RRF} = (A_x)(C_s) / (A_s)(C_x)$$

Where: ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
 A_x = Area of compound, A_s = Area of associated internal standard
 C_x = Concentration of compound, C_s = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference internal Standard)	Average RRF (Initial)	Reported	Recalculated	Reported	Recalculated
					RRF (CC)	RRF (CC)	%D	%D
1	JS1165	9/24/03	Methylene chloride (1st internal standard)	0.16435	0.1820	0.18820	14.5	14.5
			Trichlorethene (2nd internal standard)	1.91392	2.07240	2.07240	8.3	8.3
			Toluene (3rd internal standard)	1.34874	1.36138	1.36138	0.9	0.9
2			Methylene chloride (1st internal standard)					
			Trichlorethene (2nd internal standard)					
			Toluene (3rd internal standard)					
3			Methylene chloride (1st internal standard)					
			Trichlorethene (2nd internal standard)					
			Toluene (3rd internal standard)					
4			Methylene chloride (1st internal standard)					
			Trichlorethene (2nd internal standard)					
			Toluene (3rd internal standard)					

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 11095A1
SDG #: E2303

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Page: 1 of 1
Reviewer: E2
2nd reviewer: _____

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: $SF/SS \times 100$

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: #6

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Toluene-d8	10	9.72978	98	98	0
Bromofluorobenzene	↓	9.73675	97	97	↓
1,2-Dichloroethane-d4	↓	10.0	100	100	↓
Dibromofluoromethane					

Sample ID: _____

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					
Dibromofluoromethane					

Sample ID: _____

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					
Dibromofluoromethane					

Sample ID: _____

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					
Dibromofluoromethane					

Sample ID: _____

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					
Dibromofluoromethane					

LDC #: 11095A1
SDG #: E2303

VALIDATION FINDINGS WORKSHEET Matrix Spike/Matrix Spike Duplicates Results Verification

Page: 1 of 1
Reviewer: [Signature]
2nd Reviewer: [Signature]

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = $100 * (SSC - SC) / SA$

Where: SSC = Spiked sample concentration
SA = Spike added

SC = Sample concentration

RPD = $|MSC - MSDC| * 2 / (MSC + MSDC)$

MSC = Matrix spike percent recovery

MSDC = Matrix spike duplicate percent recovery

MS/MSD sample: 11 + 12

Compound	Spike Added (ug/L)		Sample Concentration (ug/L)	Spiked Sample Concentration (ug/L)		Matrix Spike		Matrix Spike Duplicate		MS/MSD	
	MS	MSD	-----	MS	MSD	Percent Recovery		Percent Recovery		RPD	
						Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
1,1-Dichloroethene	500	500	520	1040	1020	105	104	100	100	2.8	1.9
Trichloroethene	↓	↓	1700	2310	2300	112	122 109	109	120	0.65	0.43
Benzene	↓	↓	ND	518	507	104	104	101	101	2.2	2.1
Toluene	↓	↓	ND	512	493	102	102	99	99	3.8	3.8
Chlorobenzene	↓	↓	ND	488	491	98	98	98	98	0.61	0.61

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 95A1
SDG #: 62303

VALIDATION FIN IGS WORKSHEET
Laboratory Control Sample Results Verification

: 1 of 1
Reviewer: [Signature]
2nd Reviewer: [Signature]

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate (if applicable) were recalculated for the compounds identified below using the following calculation:

% Recovery = $100 * SSC/SA$

Where: SSC = Spiked sample concentration
SA = Spike added

RPD = $|LCS - LCSD| * 2 / (LCS + LCSD)$

LCS = Laboratory control sample percent recovery

LCSD = Laboratory control sample duplicate percent recovery

LCS ID: E3125000-215 LCS

Compound	Spike Added		Spiked Sample Concentration		LCS		LCSD		LCS/LCSD	
	(ug/l)		(ug/l)		Percent Recovery		Percent Recovery		RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
1,1-Dichloroethene	10	NA	10.8	NA	108	108				
Trichloroethene			10.3		103	103				
Benzene	↓	↓	10.3	↓	103	103				
Toluene			10.2		102	102				
Chlorobenzene	↓	↓	10.0	↓	100	100	NA			

Comments: Refer to Laboratory Control Sample findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 11095A1
SDG #: E2203

VALIDATION FINDINGS WORKSHEET

Sample Calculation Verification

Page: 1 of 1
Reviewer: [Signature]
2nd reviewer: [Signature]

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

~~Y~~ ~~N~~ N/A

Were all reported results recalculated and verified for all level IV samples?

Y	N	N/A
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Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

$$\text{Concentration} = \frac{(A_s)(I_s)(DF)}{(A_s)(RRF)(V_o)(\%S)}$$

A_x = Area of the characteristic ion (EICP) for the compound to be measured

A_{is} = Area of the characteristic ion (EICP) for the specific internal standard

I_s = Amount of internal standard added in nanograms (ng)

RRF = Relative response factor of the calibration standard.

V_o = Volume or weight of sample pruged in milliliters (ml) or grams (g).

Df = Dilution factor.

%S = Percent solids, applicable to soils and solid matrices only.

Example:

Sample I.D. # 6, 11 - Dichloroethane

Conc. = $\frac{(17219)(10)(25)}{(863447)(0.1613)(5)}$
= 6.2 ug/L

[illegible]